



# Notice of variation and consolidation with introductory note

## The Environmental Permitting (England & Wales) Regulations 2016

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Marchwood Power Limited  
Marchwood Power Station  
Oceanic Way  
Marchwood Industrial Park  
Marchwood  
Southampton  
SO40 4BD

### **Variation application number**

EPR/BL6217IM/V011

### **Permit number**

EPR/BL6217IM

# Marchwood Power Station

## Permit number EPR/BL6217IM

### Introductory note

#### **This introductory note does not form a part of the notice.**

Under the Environmental Permitting (England & Wales) Regulations 2016 (schedule 5, part 1, paragraph 19) a variation may comprise a consolidated permit reflecting the variations and a notice specifying the variations included in that consolidated permit.

Schedule 1 of the notice specifies the conditions that have been varied and schedule 2 comprises a consolidated permit which reflects the variations being made. Only the variations specified in schedule 1 are subject to a right of appeal.

#### **Purpose of this variation:**

To introduce controls on the maximum discharge temperature and through plant temperature rise for discharge point WW1 in Table S3.2 of the Environmental Permit. This replaces condition 2.3.6, which restricted the number of days the installation could discharge warmed water to the River Test when the ambient abstracted water temperature was 21.5°C or greater.

We have also:

- removed Table S3.1 as the implementation date for the LCP BAT conclusions has now passed;
- re-numbered Table S3.1a to S3.1 and removed reference to Table S3.1a in the permit conditions; and
- amended Table S3.1 (was S3.1a) to correct historical mistakes where the incorrect emission point was referenced.

#### **The rest of the installation is unchanged and continues to be operated as follows:**

The main purpose of the activities at the installation is to operate a combined cycle gas turbine (CCGT) power plant to supply electricity to the National Grid.

The plant consists of two gas turbines, two waste heat recovery boilers (WHRB) and a single steam turbine. Electrical output is about 900 MW (gross power). There is one black start, emergency open cycle gas turbine with an output of 15MWe, an auxiliary boiler to supply steam to pre-heat the steam turbine upon station start up, an auxiliary diesel generator, a reverse osmosis plant, cooling water system, ancillary plant and control and instrumentation equipment.

The net thermal inputs of the large combustion plants (LCPs) are as follows: LCP 216 – one 742 MWth CCGT, LCP 217 - one 742 MWth CCGT.

In the main CCGT, gas is burnt in the combustion chamber from where the hot gases expand to drive the gas turbines that drive an electrical generator. The hot exhaust gases from the gas turbines are used in the waste heat recovery boilers to generate steam, which in turn is used to generate more electricity via a steam turbine. The spent steam leaving the steam turbine is condensed and the resultant condensate returned to the waste heat recovery boiler for reuse.

Cooling water cools the condenser. The cooling water supply is taken from the River Test at the location of the existing intake for the old Marchwood Power Station. The cooling water leaving the condenser is returned to the river via the existing discharge structure for the old Marchwood Power Station.

Facilities are incorporated for the abstraction of spent steam from the steam turbine for heat recovery by any potential local developer if demonstrated to be economically viable.

The electrical power generated is transformed and dispatched to the National Grid System.

Mains water is used for domestic purposes and is treated in a water treatment plant to provide make-up water to the boiler water system. Water is also held on site to meet statutory fire prevention and fighting requirements of the Health and Safety Executive and local fire brigade.

The power station operates continuously throughout the year and is designed to have an operating life of at least 20 years. Emissions of oxides of nitrogen are controlled by the use of dry low oxides of nitrogen burners during gas firing. The flue gases from the CCGT plants are discharged via two stacks each 70 m tall. The black start gas turbine discharges flue gases from one multi-flue 40 m high stack.

The status log of a permit sets out the permitting history, including any changes to the permit reference number.

<b>Status log of the permit</b>		
<b>Description</b>	<b>Date</b>	<b>Comments</b>
Application received BL6217IM	Duly Made 02/10/2001	Permit application for Marchwood Power Station. (EPR reference: EPR/BL6217IM/A001)
Response to request for information	30/11/01 and 30/01/2002	Additional information.
Additional information received	22/02/2002	Additional information on fisheries issues.
Additional information received	12/04/2002	Additional information on thermal plume data based on +6 degrees C and estuary water temperature data.
Amended information received	Dated 03/05/2002	Additional information on corrected estuary water temperature data.
Permit determined BL6217IM	20/09/2002	Original permit issued to Marchwood Power Limited.
Variation application YP3130BF	Duly Made 16/11/2004	LCPD variation. (EPR reference: EPR/BL6217IM/V002)
Variation determined YP3130BF	27/11/2004	Variation notice issued.
Variation application CP3332SN	Duly Made 18/04/2005	Change of registered office address. (EPR reference: EPR/BL6217IM/V003)
Variation determined CP3332SN	19/05/2008	Variation notice issued.
Variation application GP3836XE	Duly Made 11/04/2008	Application to add electro-chlorination plant and sewage treatment plant, change auxiliary boiler monitoring, change raw materials and change dissolved oxygen monitoring requirements in the discharge. (EPR reference: EPR/BL6217IM/V004)
Additional information received	05/08/2008	Impact assessment, dissolved oxygen measurement proposals, effluent measurement points and site plan.
Additional information received	07/11/2008	Site plan, H1 calculations.
Additional information received	14/11/2008	Opra spreadsheet.
Additional information received	03/12/2008	Revised site plan.
Variation determined GP3836XE	04/12/2008	Variation notice issued.
Variation application EPR/BL6217IM/V005	Duly Made 04/09/2012	Amended black start arrangements; amended discharge monitoring and limits.
Additional information received	04/09/2012	Clarification in relation to thermal input capacity of the new black start turbine.
Additional information received	12/10/2012	Clarification in relation to monitoring techniques, discharges flows and bulk chemical impurities.
Variation determined EPR/BL6217IM/V005	18/12/2012	Variation notice issued.
Variation determined	11/03/2013	Environment Agency Initiated Variation, to

<b>Status log of the permit</b>		
<b>Description</b>	<b>Date</b>	<b>Comments</b>
EPR/BL6217IM/V006		incorporate Eel Regulations improvement condition.
Variation determined EPR/BL6217IM/V007	Issued 29/09/2014	Environment Agency Initiated Variation, to add an improvement condition requiring a cost benefit appraisal to ensure compliance with the Eels Regulations. Effective 01/10/14.
Regulation 60 Notice sent to the Operator	31/10/2014	Issue of a Notice under Regulation 60(1) of the EPR. Environment Agency Initiated review and variation to vary the permit under IED to implement the special provisions for LCP under Chapter III, introducing new Emission Limit Values (ELVs) applicable to LCP, referred to in Article 30(2) and set out in Annex V. The permit is also updated to modern conditions.
Regulation 60 Notice response	31/03/2015	Response received from the Operator.
Additional information received	20/07/2015	Response to request for further information (RFI) dated 17/06/15.
Variation determined EPR/BL6217IM/V008 (Billing ref: UP3234AV)	21/12/2015	Varied and consolidated permit issued in modern condition format. Variation effective from 01/01/2016.
Regulation 61 Notice sent to the Operator	01/05/2018	Issue of a Notice under Regulation 61(1) of the EPR. Environment Agency initiated review and variation to vary the permit under IED to implement Chapter II following the publication of the revised Best Available Techniques (BAT) Reference Document for large combustion plant.
Regulation 61 Notice response	22/10/2018	Response received from the Operator.
Environment Agency initiated variation issued EPR/BL6217IM/V009 (Billing ref: QP3405PX)	17/04/2019	Environment Agency initiated variation, to amend condition 2.3.6 and update operating techniques, issued.
Response to request for additional information in relation to the Regulation 61 Notice issued 01/05/18	05/05/2020	Additional information on compliance with BAT conclusions 1, 3, 4, 14, 40, 41, 42 and the applicable BAT AELs.
Additional information	21/05/2020	Additional information on compliance with indicative BAT-AEL for CO.
Variation determined EPR/BL6217IM/V010 (Billing ref: SP3900SF)	18/06/2020	Varied and consolidated permit issued. Effective from 18/06/2020
Application EPR/BL6217IM/V011	Duly made 02/04/2024	Application to remove condition 2.3.6 and vary the parameters associated with the existing water discharge from point WW1 in Table S3.2
Variation determined EPR/BL6217IM/V011 Billing ref: BL6217IM	30/05/2024	Notice of variation issued

End of introductory note

# The Environmental Permitting (England and Wales) Regulations 2016

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 varies

## Permit number

**EPR/BL6217IM**

## Issued to

**Marchwood Power Limited** (“the operator”)

whose registered office is

**Oceanic Way**

**Marchwood Industrial Park**

**Marchwood**

**Southampton**

**SO40 4BD**

company registration number 04229146

to operate a regulated facility at

**Marchwood Power Station**

**Oceanic Way**

**Marchwood Industrial Park**

**Marchwood**

**Southampton**

**SO40 4BD**

to the extent set out in the schedules.

The notice shall take effect from 30/05/2024

Name	Date
<b>Eleanor Blackeby</b>	30/05/2024

Authorised on behalf of the Environment Agency

## Schedule 1

The following conditions are deleted as a result of the application made by the operator:

- 2.3.6

The following conditions were varied as a result of the application made by the operator:

- Table S1.2, as referenced in conditions 2.3.1, 2.3.3, 2.3.7, and 2.3.8, is amended to remove operating techniques associated with the requirements of the deleted condition 2.3.6. It is also amended to add reference to documents received for EPR/BL6217IM/V011.
- Table S3.2, as referenced in conditions 3.1.1, 3.5.1(a), and 3.5.4, is amended to implement additional limits on temperature and flow for emission point WW1.
- Table S4.1, as referenced in conditions 4.2.3(a) and 4.2.3(b), is amended to remove reference to reporting required under the deleted condition 2.3.6.
- Table S3.1 (was S3.1a) as referenced in conditions 2.3.9, 3.1.1, 3.5.1(a), 3.5.4, 3.6.7, and 3.6.7(a), is amended to correct historical mistakes where the incorrect emission point was referenced.
- Table S3.3 as referenced in conditions 3.5.1(b) and 3.5.4, is amended to update the monitoring method for temperature of abstracted seawater.

The following conditions were varied as a result of an Environment Agency initiated variation:

- Table S3.1 is removed and Table S3.1a is re-numbered to S3.1. This is because the implementation date for the LCP BAT conclusions has now passed. References to Table S3.1a have also been removed from permit conditions 2.3.9, 3.1.1, 3.5.1(a), 3.5.4, 3.6.7, and 3.6.7(a).
- Condition 2.3.2 is updated to reference the latest version of the “Electricity Supply Industry IED Compliance Protocol for Utility Boilers and Gas Turbines”

## Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

# Permit

## The Environmental Permitting (England and Wales) Regulations 2016

### Permit number

**EPR/BL6217IM**

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/BL6217IM/V011 authorising,

**Marchwood Power Limited** (“the operator”),

whose registered office is

**Oceanic Way  
Marchwood Industrial Park  
Marchwood  
Southampton  
SO40 4BD**

company registration number 04229146

to operate a regulated facility at

**Marchwood Power Station  
Oceanic Way  
Marchwood Industrial Park  
Marchwood  
Southampton  
SO40 4BD**

to the extent authorised by and subject to the conditions of this permit.

Name	Date
<b>Eleanor Blackeby</b>	30/05/2024

Authorised on behalf of the Environment Agency

# Conditions

## 1 Management

### 1.1 General management

1.1.1 The operator shall manage and operate the activities:

- (a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and
- (b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

### 1.2 Energy efficiency

1.2.1 The operator shall:

- (a) take appropriate measures to ensure that energy is used efficiently in the activities;
- (b) take appropriate measures to ensure the efficiency of energy generation at the permitted installation is maximised;
- (c) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and
- (d) take any further appropriate measures identified by a review.

### 1.3 Efficient use of raw materials

1.3.1 The operator shall:

- (a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;
- (b) maintain records of raw materials and water used in the activities;
- (c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and
- (d) take any further appropriate measures identified by a review.

### 1.4 Avoidance, recovery and disposal of wastes produced by the activities

1.4.1 The operator shall take appropriate measures to ensure that:

- (a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities;
- (b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and
- (c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.



- 1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

## **2 Operations**

### **2.1 Permitted activities**

- 2.1.1 The operator is only authorised to carry out the activities specified in schedule 1, table S1.1 (the “activities”).

### **2.2 The site**

- 2.2.1 The activities shall not extend beyond the site, being the land shown edged in red on the site plan at schedule 7 to this permit.

### **2.3 Operating techniques**

- 2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.
- 2.3.2 For the following activities referenced in schedule 1, table S1.1: LCP216 and LCP217. The activities shall be operated in accordance with the “Electricity Supply Industry IED Compliance Protocol for Utility Boilers and Gas Turbines” dated November 2022 or any later version unless otherwise agreed in writing by the Environment Agency.
- 2.3.3 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation (“plan”) specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.
- 2.3.4 For the following activities referenced in schedule 1, table S1.1: the black start OCGT unit. The operator shall not operate the OCGT unit for checking purposes for more than 500 hours per year without the written agreement of the Environment Agency.
- 2.3.5 The operator shall continuously aerate the aqueous discharge between 1 June and 31 October.
- 2.3.6 Any raw materials or fuels listed in schedule 2, table S2.1 shall conform to the specifications set out in that table.
- 2.3.7 For the following activities referenced in schedule 1, table S1.1: LCP216 and LCP217. The end of the start-up period and the start of the shutdown period shall conform to the specifications set out in schedule 1, tables S1.2 and S1.5.
- 2.3.8 For the following activities referenced in schedule 1, table S1.1: LCP216 and LCP217. The effective Dry Low NO<sub>x</sub> threshold shall conform to the specifications set out in schedule 1, tables S1.2 and S1.6.
- 2.3.9 The emission limit values from emission points A1 and A2 listed in table S3.1 of schedule 3 following the issue of a Black Start Instruction by the National Grid shall be disregarded for the purposes of compliance whilst that instruction remains effective and in accordance with the report submitted in response to improvement condition IC13.
- 2.3.10 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:
- (a) the nature of the process producing the waste;

- (b) the composition of the waste;
- (c) the handling requirements of the waste;
- (d) the hazardous property associated with the waste, if applicable; and
- (e) the waste code of the waste.

2.3.11 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

## **2.4 Improvement programme**

2.4.1 The operator shall complete the improvements specified in schedule 1, table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.

2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

## **2.5 Pre-operational conditions**

2.5.1 The operations specified in schedule 1, table S1.4 shall not commence until the measures specified in that table have been completed.

# **3 Emissions and monitoring**

## **3.1 Emissions to water, air or land**

3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3, tables S3.1 and S3.2.

3.1.2 The limits given in schedule 3 shall not be exceeded.

3.1.3 Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination.

## **3.2 Emissions of substances not controlled by emission limits**

3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.2.2 The operator shall:

- (a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;
- (b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

### **3.3 Odour**

- 3.3.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.
- 3.3.2 The operator shall:
- (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;
  - (b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

### **3.4 Noise and vibration**

- 3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.
- 3.4.2 The operator shall:
- (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;
  - (b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

### **3.5 Monitoring**

- 3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:
- (a) point source emissions specified in tables S3.1 and S3.2;
  - (b) surface water or groundwater specified in table S3.3;
  - (c) process monitoring specified in table S3.4.
- 3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continuous), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.
- 3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by the Environment Agency.
- 3.5.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3, tables S3.1, S3.2, S3.3 and S3.4 unless otherwise agreed in writing by the Environment Agency.

## 3.6 Monitoring for Large Combustion Plant

- 3.6.1 All monitoring required by this permit shall be carried out in accordance with the provisions of Annex V of the Industrial Emissions Directive and the Large Combustion Plant Best Available Techniques Conclusions.
- 3.6.2 If the monitoring results for more than 10 days a year are invalidated within the meaning set out in condition 3.6.7, the operator shall:
- (a) within 28 days of becoming aware of this fact, review the causes of the invalidations and submit to the Environment Agency for approval, proposals for measures to improve the reliability of the continuous measurement systems, including a timetable for the implementation of those measures; and
  - (b) implement the approved proposals.
- 3.6.3 Continuous measurement systems on emission points from the LCP shall be subject to quality control by means of parallel measurements with reference methods at least once every calendar year.
- 3.6.4 Unless otherwise agreed in writing by the Environment Agency in accordance with condition 3.6.5 below, the operator shall carry out the methods, including the reference measurement methods, to use and calibrate continuous measurement systems in accordance with the appropriate CEN standards.
- 3.6.5 If CEN standards are not available, ISO standards, national or international standards which will ensure the provision of data of an equivalent scientific quality shall be used, as agreed in writing with the Environment Agency.
- 3.6.6 Where required by a condition of this permit to check the measurement equipment, the operator shall submit a report to the Environment Agency in writing, within 28 days of the completion of the check.
- 3.6.7 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3, table S3.1; the Continuous Emission Monitors shall be used such that:
- (a) for the continuous measurement systems fitted to the LCP release points defined in tables S3.1 the validated hourly, monthly, yearly and daily averages shall be determined from the measured valid hourly average values after having subtracted the value of the 95% confidence interval;
  - (b) the 95% confidence interval for nitrogen oxides and sulphur dioxide of a single measured result shall be taken to be 20%;
  - (c) the 95% confidence interval for dust releases of a single measured result shall be taken to be 30%;
  - (d) the 95% confidence interval for carbon monoxide releases of a single measured result shall be taken to be 10%;
  - (e) an invalid hourly average means an hourly average period invalidated due to malfunction of, or maintenance work being carried out on, the continuous measurement system. However, to allow some discretion for zero and span gas checking, or cleaning (by flushing), an hourly average period will count as valid as long as data has been accumulated for at least two thirds of the period. Such discretionary periods are not to exceed more than 5 in any one 24-hour period unless agreed in writing. Where plant may be operating for less than the 24-hour period, such discretionary periods are not to exceed more than one quarter of the overall valid hourly average periods unless agreed in writing; and
  - (f) any day, in which more than three hourly average values are invalid shall be invalidated.

## 4 Information

### 4.1 Records

4.1.1 All records required to be made by this permit shall:

- (a) be legible;
- (b) be made as soon as reasonably practicable;
- (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and
- (d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:
  - (i) off-site environmental effects; and
  - (ii) matters which affect the condition of the land and groundwater.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

### 4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.

4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) each year. The report(s) shall include as a minimum:

- (a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;
- (b) the resource efficiency metrics set out in schedule 4, table S4.2;
- (c) the performance parameters set out in schedule 4, table S4.3 using the forms specified in table S4.4 of that schedule.

4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:

- (a) in respect of the parameters and emission points specified in schedule 4, table S4.1;
- (b) for the reporting periods specified in schedule 4, table S4.1 and using the forms specified in schedule 4, table S4.4; and
- (c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

### 4.3 Notifications

4.3.1 In the event:

- (a) that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—

- (i) inform the Environment Agency,
  - (ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and
  - (iii) take the measures necessary to prevent further possible incidents or accidents;
- (b) of a breach of any permit condition the operator must immediately—
- (i) inform the Environment Agency, and
  - (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;
- (c) of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.

4.3.2 Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

- (a) any change in the operator's trading name, registered name or registered office address; and
- (b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

- (c) any change in the operator's name or address; and
- (d) any steps taken with a view to the dissolution of the operator.

In any other case:

- (e) the death of any of the named operators (where the operator consists of more than one named individual);
- (f) any change in the operator's name(s) or address(es); and
- (g) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

- (a) the Environment Agency shall be notified at least 14 days before making the change; and
- (b) the notification shall contain a description of the proposed change in operation.

4.3.6 The Environment Agency shall be given at least 14 days' notice before implementation of any part of the site closure plan.

4.3.7 Where the operator has entered into a climate change agreement with the Government, the Environment Agency shall be notified within one month of:

- (a) a decision by the Secretary of State not to re-certify the agreement;

- (b) a decision by either the operator or the Secretary of State to terminate the agreement; and
- (c) any subsequent decision by the Secretary of State to re-certify such an agreement.

4.3.8 The operator shall inform the Environment Agency in writing of the closure of any LCP within 28 days of the date of closure.

## **4.4 Interpretation**

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made “immediately”, in which case it may be provided by telephone.

# Schedule 1 – Operations

<b>Table S1.1 activities</b>			
<b>Activity reference</b>	<b>Activity listed in Schedule 1 of the EP Regulations</b>	<b>Description of specified activity</b>	<b>Limits of specified activity</b>
AR1	Section 1.1 A (1) (a): Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more.	<p>LCP 216 and LCP 217: CCGT power station comprising two main combustion turbines each with a thermal input of 742 MW<sub>th</sub>, two waste heat recovery boilers, a steam turbine, and ancillary equipment.</p> <p>Black start OCGT gas turbine: 15 MW<sub>e</sub> (approximately equivalent to 43 MW<sub>th</sub> based on typical efficiency)</p> <p>Auxiliary boiler: 11 MW<sub>th</sub>, to supply steam to pre-heat the steam turbine upon station start-up</p> <p>Diesel generator: 2.57 MW<sub>th</sub></p> <p>Diesel generator: 1 MWe, to provide power to the black start OCGT.</p>	From receipt of natural gas to discharge of exhaust gases, and the generation of electricity and steam for export.
<b>Directly Associated Activity</b>			
AR2	Surface water discharges to controlled waters	Surface water discharges from areas of the installation that require oil interception facilities to be installed.	From collection of surface water to discharge to controlled waters.
AR3	Process effluent management	Blowdown from operation of the boiler; and effluents arising from the operation of the water treatment plant, the electrochlorination plant and the sewage treatment plant.	From effluent generation to discharge to controlled waters.
AR4	Water treatment plant.	Production of deionised water via ion-exchange and reverse osmosis plant for boiler makeup water.	From receipt of untreated water to dispatch of deionised water to process.



<b>Table S1.1 activities</b>			
<b>Activity reference</b>	<b>Activity listed in Schedule 1 of the EP Regulations</b>	<b>Description of specified activity</b>	<b>Limits of specified activity</b>
AR5	Electrochlorination plant.	Generation of sodium hypochlorite solution by electrolysis of seawater for use in cooling water system.	From receipt of seawater to dispatch of sodium hypochlorite solution to process.
AR6	Sewage treatment plant.	Treatment of sewage in package treatment plant.	From receipt of untreated sewage to dispatch of treated sewage into effluent management system.
AR7	Cooling water system.	Seawater cooling system for the condenser.	From abstraction of seawater to discharge to controlled waters.

<b>Table S1.2 Operating techniques</b>		
<b>Description</b>	<b>Parts</b>	<b>Date Received</b>
Application BL6217IM	The response to questions 2.3 given in section B2.3 (pages 37-61) and App. C, D & E of the application (Document No. 61097A/0017 Rev A) {excluding last paragraph page 43, first and second paragraphs page 44, third sentence of last paragraph page 49 and first three sentences paragraph six and paragraphs 7 to 50 page 50}.	02/10/2001
Variation application GP3836XE (EPR/BL6217IM/V004)	The response provided in section C1.2 and C2.2.	07/04/2008
Variation application EPR/BL6217IM/V005	<ul style="list-style-type: none"> <li>• Section 3.1.18 &amp; 3.1.20 - the operation of auxiliary diesel generator (black start) and reverse osmosis plant</li> <li>• Section 3.2.9 - continuous monitoring of mixed effluent stream at point WW1</li> <li>• Section 3.2.13 - the continuation of effluent monitoring at internal release points, at W2 (boiler blowdown), W3 (water treatment plant), W3.1 (electrochlorination plant), W3.2 (sewage treatment plant) &amp; W4 (cooling water system)</li> <li>• Section 3.2.14 - the reference to existing limits at internal release points as process monitoring indicators subject to the proposed amendments outlined in subsequent paragraphs [Section 3.2.21 in relation to pH and Section 3.2.20 (first sentence) in relation to cadmium and mercury]</li> <li>• Section 3.2.20 (with the exception of the first sentence) - implementation of a robust purchasing policy to minimise the usage of raw materials containing cadmium and mercury, along with regular compliance demonstrations to the Environment Agency</li> <li>• Section 3.2.29 (with the exception of the words “on a</li> </ul>	04/09/2012

<b>Table S1.2 Operating techniques</b>		
<b>Description</b>	<b>Parts</b>	<b>Date Received</b>
	<p>quarterly basis") - servicing and desludging of sewage treatment plant</p> <ul style="list-style-type: none"> <li>• Section 3.2.50 - the upgrade of actuators on cooling water abstraction pumps</li> <li>• Section 3.2.53-3.2.55 &amp; 3.6.3 - the pollution prevention measures related to the surface water discharge from the maintenance laydown area</li> <li>• Section 3.3.3 - regular review of sector guidance and BREF with aim to improve efficiency and ensure compliance with BAT</li> <li>• Section 3.4.1 - EMS update to include controls relating to fugitive emissions, odours and noise/vibration as a result of this application</li> <li>• Section 3.5.6 - regular review of raw materials usage and replacement of hazardous materials with less damaging alternatives</li> <li>• Section 3.5.8 &amp; 3.5.9 - consideration of re-use of drain down boiler water as water treatment plant feedstock to reduce potable water consumption</li> <li>• Section 3.6.1 - provision of CEMS data for the auxiliary boiler</li> <li>• Section 3.6.2 - annual spot sampling of emissions from black start OCGT</li> <li>• Section 3.8 - waste management</li> <li>• Section 3.9.2 &amp; 3.9.3 - use of fuels</li> <li>• Schedule 5 response, pt.4 - product specifications for sodium hydroxide and hydrochloric acid</li> </ul>	
Response to regulation 60(1) Notice – request for information dated 31/10/14	Compliance route and operating techniques identified in response to questions 2 (compliance route), 4 (details of each LCP), 5 (net thermal input).	31/03/2015
Receipt of additional information to the regulation 60(1) Notice. requested by letter dated 17/06/2015	Compliance route and operating techniques identified in response to questions 4 (proposed emission limits).	20/07/2015
Response to improvement condition IC12	Document titled 'Start Up and Shut Down Thresholds - Environmental Permit EPR/BL6217IM/V008 - Improvement Programme Requirement IC12', dated 26 <sup>th</sup> January 2016	23/02/2016
Response to regulation 61(1) Notice – request for information dated 01/05/18 EPR/BL6217IM/V010	Compliance and operating techniques identified in response to the BAT Conclusions for large combustion plant published on 17th August 2017.	22/10/2018
Additional information in response to regulation 61(1) Notice EPR/BL6217IM/V010	Additional information on compliance and operating techniques identified in response to BAT conclusions 1, 3, 4, 14, 40, 41, 42 and the applicable BAT AELs.	05/05/2020
Application EPR/BL6217IM/V011	Parts C2 and C3 of the application and all referenced supporting documentation	Duly made 02/04/2024

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
IC1	The Operator shall conduct a comprehensive waste minimisation audit and make proposals to the Agency for implementing waste minimisation techniques.	Completed
IC2	The Operator shall submit a report to the Agency on measures to be adopted to minimise the duration of start-up and shutdown periods for the CCGT plant.	Completed
IC3	The Operator shall establish charts of actual emissions for oxides of nitrogen (as NO <sub>2</sub> ) and carbon monoxide over the full range of gas turbine generator loads when using natural gas as fuel. The relationship shall be established between emissions for both increasing and decreasing loads. The Operator shall submit a report of the findings (including the charts) to the Agency.	Completed
IC4	The Operator shall submit to the Environment Agency a detailed report to demonstrate that the activities covered by this permit are carried on in such a way that energy and water are used efficiently. The report shall provide details, as appropriate, of all indicative energy efficiency requirements in accordance with Environment Agency guidance note IPPC Technical Guidance for Energy Efficiency including details of the energy efficiency plan	Completed
IC5	The Operator shall propose an operational protocol, for prior (written) approval by the Agency, if the situation arises whereby monitoring, at the locations agreed under Condition 2.10.15, indicates that national air quality guidelines/standards have been exceeded. The protocol should address situations where the power station has a minor or major contribution to any exceedance.	Completed
IC6	The Operator shall review the first 12 months operation and air quality monitoring to assess future monitoring requirements and the need for any process improvements to reduce the impact of the process on ambient NO <sub>2</sub> levels, or whether any revisions to the protocol agreed under 9.5 are necessary.	Completed
IC7	The Operator shall review the validity of the air dispersion modelling that was submitted with the application, having regard to the environmental monitoring carried out.	Completed
IC8	<p>The Operator shall undertake a review of the existing screening measures at the intakes and outfalls which provide and discharge water to and from the Installation. The review shall be undertaken with reference to the Eels (England and Wales) Regulations 2009 (SI 2009/3344) and the Environment Agency „Safe Passage of Eel“ Regulatory Position Statement version 1 dated July 2012.</p> <p>The Operator shall submit details of the arrangement suitable to meet the requirements for the safe passage of eels [of the Eels (England and Wales) Regulations 2009 (SI 2009/3344)] by either:-</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Providing a written proposal for the installation of an eel screen.</li> <li><input type="checkbox"/> Providing a written proposal to the modification of existing screening arrangements.</li> <li><input type="checkbox"/> Providing a written response with an explanation and description of how the existing screening arrangements can be regarded to meet the requirements for the safe passage of eels [of SI 2009/3344] either without change or with mitigation measures.</li> <li><input type="checkbox"/> Providing a written response setting out a case for an exemption</li> </ul> <p>In all cases, the proposal shall be submitted in writing for the approval of the Environment Agency. Where appropriate, each proposal shall contain an assessment of alternative options considered including impacts on other fish species and an explanation of why the proposed option has</p>	Completed

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
	<p>been chosen.</p> <p>Where installation of eel screen; modification of existing arrangements; or mitigation measures are proposed, the submission shall contain relevant timescales for installation in accordance with the Safe Passage of Eel Regulatory Position Statement version 1 dated July 2012.</p> <p>The proposals shall be implemented in accordance with the Environment Agency's written approval.</p>	
IC9	<p>The Operator has undertaken a review of the existing screening arrangements with reference to the Eels (England and Wales) Regulations 2009 (SI 2009/3344) and the Environment Agency "Safe Passage for Eel" Regulatory Position Statement version 1 dated July 2012 (and as amended February 2013) in response to Improvement Programme reference 08. The Environment Agency has determined that the site does not comply with the requirements for safe passage of eel and the Operator is now required to complete a cost benefits appraisal of best available technique with reference to the Environment Agency "Safe Passage for Eel: Guidance on Exemptions" as a screening tool.</p> <p>a) If the Cost Benefit Assessment shows that the Benefits are greater than the costs by a factor of 1.5 or more, then the Operator shall submit to the Environment Agency for review a report setting out the costs and the technical and economic feasibility to introduce the improvements to achieve best available technique.</p> <p>b) If the Cost Benefit Assessment shows that the Benefits are not greater than the costs by a factor of 1.5 or more, then the Operator shall, with reference to the Environment Agency "Safe Passage for Eel: Guidance on exemptions, assess which alternative measure, or combination of alternative measures, could be implemented under a case of a conditioned Exemption. The Operator shall submit a report to the Environment Agency setting out the costs and the technical and economic feasibility of implementing their proposed alternative measure or measures.</p> <p>In all cases, the submission shall contain relevant timescales in accordance with the Safe Passage for Eel Regulatory Position Statement version 1 dated July 2012 (as amended 2013).</p> <p>The proposals shall be implemented following written approval of the Environment Agency.</p> <p>Whilst undertaking this Improvement Condition, the Operator shall be operating under exemption from the requirements to place eel screen diversion structures pursuant to Regulation 17(5)(a) of the Eels (England and Wales) Regulations 2009. The exemption will remain in place until the Environment Agency has provided written approval that the Improvement Condition has been deemed complete.</p>	Completed
IC10	<p>'For LCPD LCP 210 and 211 (now LCP 216 and 217 under IED). Annual emissions of dust, sulphur dioxide and oxides of nitrogen including energy usage for the year 01/01/2015 to 31/12/2015 shall be submitted to the Environment Agency using form AAE1 via the NERP Registry. If the LCPD LCP was a NERP plant the final quarter submissions shall be provided on the RTA 1 form to the NERP Registry.'</p>	Completed

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC11	<p>The operator shall provide a report in writing to the Environment Agency for acceptance which provides the net rated thermal input for LCP123, LCP 456 etc. The net rated thermal input is the 'as built' value unless the plant has been modified significantly resulting in an improvement of the plant efficiency or output that increases the rated thermal input (which typically requires a performance test to demonstrate that guaranteed improvements have been realised).</p> <p>Evidence to support this figure, in order of preference, shall be in the form of:-</p> <ul style="list-style-type: none"> <li>a) Performance test results* during contractual guarantee testing or at commissioning (quoting the specified standards or test codes),</li> <li>b) Performance test results after a significant modification (quoting the specified standards or test codes),</li> <li>c) Manufacturer's contractual guarantee value,</li> <li>d) Published reference data, e.g., Gas Turbine World Performance Specifications (published annually);</li> <li>e) Design data, e.g., nameplate rating of a boiler or design documentation for a burner system;</li> <li>f) Operational efficiency data as verified and used for heat accountancy purposes,</li> <li>g) Data provided as part of Due Diligence during acquisition,</li> </ul> <p>*Performance test results shall be used if these are available.</p>	Completed
IC12	<p>The Operator shall submit a report in writing to the Environment Agency for acceptance. The report shall define and provide a written justification of the "minimum start up load" and "minimum shut-down load", for each unit within the LCP as required by the Implementing Decision 2012/249/EU in terms of:</p> <ul style="list-style-type: none"> <li>i. The output load (i.e. electricity, heat or power generated) (MW); and</li> <li>ii. This output load as a percentage of the rated thermal output of the combustion plant (%).</li> </ul> <p>And / Or</p> <ul style="list-style-type: none"> <li>iii. At least three criteria (operational parameters and / or discrete processes as detailed in the Annex) or equivalent operational parameters that suit the technical characteristics of the plant, which can be met at the end of start-up or start of shut-down as detailed in Article (9) 2012/249/EU.</li> </ul>	Completed

Reference	Requirement	Date
IC13	<p>A written report shall be submitted to the Environment Agency for approval. The report shall contain an impact assessment demonstrating that there is no significant environmental risk associated with black start operations and propose a methodology for minimisation of environmental impact during such a period of operation and for reporting instances of black start operation.</p> <p>The plant can be operated as set out in condition 2.3.10 of the permit once the report has been approved by the Environment Agency. The methodology for operation and reporting set out in the report shall be implemented by the Operator from the date of approval by the Environment Agency.</p>	Complete

Reference	Operation	Pre-operational measures
PO1	Black start open cycle gas turbine	At least 8 weeks prior to operation of the turbine, the Operator shall submit a report to the Environment Agency which shall give technical details of the turbine, including but not limited to (i) the location of the unit and release point A3 (ii) the thermal input capacity and (iii) the anticipated emissions of oxides of nitrogen and carbon monoxide.
PO2	Auxiliary diesel generator	At least 8 weeks prior to operation of the new OCGT unit, the Operator shall confirm on a suitable site plan, the location of the auxiliary diesel generator and release point A7. The plan shall be submitted to the Environment Agency.

Emission Point and Unit Reference	“Minimum Start-Up Load” Load in MW and as percent of rated power output (%) and when two of the criteria listed below for the LCP or unit have been met.	“Minimum Shut-Down Load” Load in MW and as percent of rated power output (%) and when two of the criteria listed below for the LCP or unit have been met.
A1 LCP 216	<ol style="list-style-type: none"> <li>Gas turbine Inlet Guide Vanes (IGV) &gt; 7% open <sup>[Note 1]</sup></li> <li>HP+IP Bypass &lt;5% <sup>[Note 2]</sup></li> <li>GT output load &gt;120 MWe; 40.5%</li> </ol>	<ol style="list-style-type: none"> <li>GT IGV Min Active <sup>[Note 3]</sup></li> <li>GT Sub Group Controller (SGC) in shutdown <sup>[Note 4]</sup></li> <li>GT output load &lt;115 MWe; 38.8%</li> </ol>
A2 LCP 217	<ol style="list-style-type: none"> <li>Gas turbine Inlet Guide Vanes (IGV) &gt; 7% open <sup>[Note 1]</sup></li> <li>HP+IP Bypass &lt;5% <sup>[Note 2]</sup></li> <li>GT output load &gt;120 MWe; 40.1%</li> </ol>	<ol style="list-style-type: none"> <li>GT IGV Min Active <sup>[Note 3]</sup></li> <li>GT Sub Group Controller (SGC) in shutdown <sup>[Note 4]</sup></li> <li>GT output load &lt;115 MWe; 38.4%</li> </ol>
<p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>The IGV controls how much air enters the turbine. At the end of the start-up period the IGV will approach 7% open, above this figure indicates stabilisation of the GTs.</li> <li>During the start-up phase, steam is diverted to the condenser. When the bypass valves are less than 5% open the start-up can be considered as complete.</li> <li>When the GT IGV minimum position is active the plant is considered to be entering shut down phase.</li> <li>This is instigated manually by the operator and starts the process of the gas turbines ramping down.</li> </ol>		

<b>Table S1.6 Dry Low NOx effective definition</b>	
<b>Emission Point and Unit Reference</b>	<b>Dry Low NOx effective definition Load in MW and as percent of rated power output (%) or when two of the criteria listed below for the LCP or unit have been met, whichever is soonest</b>
A1 LCP 216	<ol style="list-style-type: none"> <li>1. Gas turbine Inlet Guide Vanes (IGV) &gt; 7% open</li> <li>2. HP+IP Bypass &lt;5%</li> <li>3. GT output load &gt;120 MWe; 40.5%</li> </ol>
A2 LCP 217	<ol style="list-style-type: none"> <li>1. Gas turbine Inlet Guide Vanes (IGV) &gt; 7% open</li> <li>2. HP+IP Bypass &lt;5%</li> <li>3. GT output load &gt;120 MWe; 40.1%</li> </ol>

## Schedule 2 – Raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	Specification
Natural Gas	--



## Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air - emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A1 [Point A1 on emission point plan in Schedule 7]	LCP No. 216 Gas turbine fired on natural gas	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	42.4 mg/m <sup>3</sup> DLN effective to baseload	Yearly average	Continuous	BS EN 14181
A1 [Point A1 on emission point plan in Schedule 7]	LCP No. 216 Gas turbine fired on natural gas	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	53.1 mg/m <sup>3</sup> DLN effective to baseload	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A1 [Point A1 on emission point plan in Schedule 7]	LCP No. 216 Gas turbine fired on natural gas	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	53.1 mg/m <sup>3</sup> DLN effective to baseload  53.1 mg/m <sup>3</sup> MSUL/MSDL to base load	Daily mean of validated hourly averages	Continuous	BS EN 14181
A1 [Point A1 on emission point plan in Schedule 7]	LCP No. 216 Gas turbine fired on natural gas	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	120 mg/m <sup>3</sup> DLN effective to baseload	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A1 [Point A1 on emission point plan in Schedule 7]	LCP No. 216 Gas turbine fired on natural gas	Carbon Monoxide	30 mg/m <sup>3</sup> DLN effective to baseload	Yearly average	Continuous	BS EN 14181
A1 [Point A1 on emission point plan in Schedule 7]	LCP No. 216 Gas turbine fired on natural gas	Carbon Monoxide	50 mg/m <sup>3</sup> DLN effective to baseload	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A1 [Point A1 on emission point plan in Schedule 7]	LCP No. 216 Gas turbine fired on natural gas	Carbon Monoxide	50 mg/m <sup>3</sup> DLN effective to baseload  50 mg/m <sup>3</sup> MSUL/MSDL to base load	Daily mean of validated hourly averages	Continuous	BS EN 14181
A1 [Point A1 on emission point plan in	LCP No. 216 Gas turbine	Carbon Monoxide	50 mg/m <sup>3</sup> DLN effective to	95% of validated hourly	Continuous	BS EN 14181

<b>Table S3.1 Point source emissions to air - emission limits and monitoring requirements</b>						
<b>Emission point ref. &amp; location</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (including unit)-these limits do not apply during start up or shut down.</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
Schedule 7]]	fired on natural gas		baseload	averages within a calendar year		
A1 [Point A1 on emission point plan in Schedule 7]	LCP No. 216 Gas turbine fired on natural gas	Sulphur dioxide	-	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency
A1 [Point A1 on emission point plan in Schedule 7]	LCP No. 216 Gas turbine fired on natural gas	Flue gas flow rate	-	-	Continuous determination As appropriate to reference	EN ISO 16911
A1 [Point A1 on emission point plan in Schedule 7]	LCP No. 216 Gas turbine fired on natural gas	Oxygen	-		Continuous As appropriate to reference	BS EN 14181
A1 [Point A1 on emission point plan in Schedule 7]	LCP No. 216 Gas turbine fired on natural gas	Water Vapour	-		Continuous As appropriate to reference	BS EN 14181
A1 [Point A1 on emission point plan in Schedule 7]	LCP No. 216 Gas turbine fired on natural gas	Stack gas temperature	-		Continuous As appropriate to reference	Traceable to national standards
A1 [Point A1 on emission point plan in Schedule 7]	LCP No. 216 Gas turbine fired on natural gas	Stack gas pressure	-		Continuous As appropriate to reference	Traceable to national standards
A1 [Point A1 on site plan in schedule 7]	LCP No. 216 Gas turbine fired on natural gas	As required by the Method Implementation Document for BS EN 15259	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A2 [Point A2 on emission point plan in	LCP No. 217 Gas turbine	Oxides of Nitrogen (NO and	42.4 mg/m <sup>3</sup> DLN effective to baseload	Yearly average	Continuous	BS EN 14181

<b>Table S3.1 Point source emissions to air - emission limits and monitoring requirements</b>						
<b>Emission point ref. &amp; location</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (including unit)-these limits do not apply during start up or shut down.</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
Schedule 7]	fired on natural gas	NO <sub>2</sub> expressed as NO <sub>2</sub> )				
A2 [Point A2 on emission point plan in Schedule 7]	LCP No. 217 Gas turbine fired on natural gas	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	53.1 mg/m <sup>3</sup> DLN effective to baseload	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A2 [Point A2 on emission point plan in Schedule 7]	LCP No. 217 Gas turbine fired on natural gas	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	53.1 mg/m <sup>3</sup> DLN effective to baseload  53.1 mg/m <sup>3</sup> MSUL/MSDL to base load	Daily mean of validated hourly averages	Continuous	BS EN 14181
A2 [Point A2 on emission point plan in Schedule 7]	LCP No. 217 Gas turbine fired on natural gas	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	120 mg/m <sup>3</sup> DLN effective to baseload	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A2 [Point A2 on emission point plan in Schedule 7]	LCP No. 217 Gas turbine fired on natural gas	Carbon Monoxide	30 mg/m <sup>3</sup> DLN effective to baseload	Yearly average	Continuous	BS EN 14181
A2 [Point A2 on emission point plan in Schedule 7]	LCP No. 217 Gas turbine fired on natural gas	Carbon Monoxide	50 mg/m <sup>3</sup> DLN effective to baseload	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A2 [Point A2 on emission point plan in Schedule 7]	LCP No. 217 Gas turbine fired on natural gas	Carbon Monoxide	50 mg/m <sup>3</sup> DLN effective to baseload  50 mg/m <sup>3</sup> MSUL/MSDL to base load	Daily mean of validated hourly averages	Continuous	BS EN 14181
A2 [Point A2 on emission point plan in Schedule 7]	LCP No. 217 Gas turbine fired on natural gas	Carbon Monoxide	50 mg/m <sup>3</sup> DLN effective to baseload	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181

**Table S3.1 Point source emissions to air - emission limits and monitoring requirements**

<b>Emission point ref. &amp; location</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (including unit)-these limits do not apply during start up or shut down.</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
A2 [Point A2 on emission point plan in Schedule 7]	LCP No. 217 Gas turbine fired on natural gas	Sulphur dioxide	-	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency
A2 [Point A2 on emission point plan in Schedule 7]	LCP No. 217 Gas turbine fired on natural gas	Flue gas flow rate	-	-	Continuous determination As appropriate to reference	EN ISO 16911
A2 [Point A2 on emission point plan in Schedule 7]	LCP No. 217 Gas turbine fired on natural gas	Oxygen	-	-	Continuous As appropriate to reference	BS EN 14181
A2 [Point A2 on emission point plan in Schedule 7]	LCP No. 217 Gas turbine fired on natural gas	Water Vapour	-	-	Continuous As appropriate to reference	BS EN 14181
A2 [Point A2 on emission point plan in Schedule 7]	LCP No. 217 Gas turbine fired on natural gas	Stack gas temperature	-	--	Continuous As appropriate to reference	Traceable to national standards
A2 [Point A2 on emission point plan in Schedule 7]	LCP No. 217 Gas turbine fired on natural gas	Stack gas pressure	-	-	Continuous As appropriate to reference	Traceable to national standards
A2 [Point A2 on site plan in schedule 7]	LCP No. 217 Gas turbine fired on natural gas	As required by the Method Implementation Document for BS EN 15259	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A3 [ Point A3 on emission point plan in Schedule 7]	OCGT black start gas turbine	Oxides of nitrogen (as NO <sub>2</sub> )	No limit set	Spot sample	Annual	BS EN 14792
A3 [ Point A3 on emission point plan in Schedule 7]	OCGT black start	Carbon monoxide	No limit set	Spot sample	Annual	BS EN 15058

<b>Emission point ref. &amp; location</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (including unit)-these limits do not apply during start up or shut down.</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
plan in Schedule 7]	gas turbine					
A4 [ Point A4 on emission point plan in Schedule 7]	Auxiliary boiler stack	Combustion gases	No limit set	--	--	Permanent sampling access not required
A5 [ Point A5 on emission point plan in Schedule 7]	Emergency generator stack	Combustion gases	No limit set	--	--	Permanent sampling access not required
A6 [ Point A6 on emission point plan in Schedule 7]	Natural gas system safety vents	Natural gas	No limit set	--	--	Permanent sampling access not required
A7 [ Point A7 on emission point plan in Schedule 7]	Auxiliary diesel generator for OCGT black start turbine	Combustion gases	No limit set	--	--	Permanent sampling access not required

<b>Emission point ref. &amp; location</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (incl. unit)</b>	<b>Reference Period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
WW1 [WW1 on emission point plan in Schedule 7]	Cooling water and process effluent streams from boiler blowdown, water treatment, electrochlorination and sewage treatment	Flow Summer <sup>Note 1</sup>	54,041 m <sup>3</sup> /hr	Hourly average	Continuous	Flow meter
			1,297,000 m <sup>3</sup> /day	Daily maximum		
		Flow Winter <sup>Note 1</sup>	45,041 m <sup>3</sup> /hr	Hourly average	Continuous	Flow meter
			1,081,000 m <sup>3</sup> /day	Daily maximum		
		pH	6-9 (inclusive)		Continuous	BS6068 2.50:1995 Electro-chemical potential
		Total residual oxidant (as total residual chlorine)	100 µg/l	During periods when cooling water is dosed to control biofouling	Continuous	Proprietary instrument - Amperometry
Dissolved oxygen	≥ 5 mg/l <sup>Note 2</sup>	Hourly average	Continuous	Luminescence - optical		

<b>Table S3.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements</b>						
<b>Emission point ref. &amp; location</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (incl. unit)</b>	<b>Reference Period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
		Oil and grease	None visible	Instantaneous	Daily	Visual inspection
		Maximum discharge temperature	30°C	Instantaneous	Continuous	Resistance temperature detector
		Maximum plant uplift Summer <sup>Note 1</sup> and Note 3	+8°C	Hourly Average	Continuous	Resistance temperature detector
		Maximum plant uplift Winter <sup>Note 1</sup> and Note 3	+9.5°C	Hourly Average	Continuous	Resistance temperature detector
SW1 [SW1 on emission point plan in Schedule 7]	Uncontaminated surface water discharge to the River Test Estuary	No parameters set	No limits set	--	--	--
SW2 [SW2 on emission point plan in Schedule 7]	Site drainage from the maintenance laydown area, discharge to River Test Estuary via an interceptor	No parameters set	No limits set	--	--	--
Note 1: Summer: 1 May – 31 October (inclusive), and Winter: 1 November – 30 April (inclusive) Note 2: Unless otherwise agreed in writing with the Environment Agency, compliance assessment shall be based on the period 1 June to 31 October (inclusive) Note 3: Plant Uplift is defined by the temperature delta between RTDs measured at WW1 & 10 UMA (WW1 – 10UMA)						

<b>Table S3.3 Surface water or groundwater monitoring requirements</b>				
<b>Location or description of point of measurement</b>	<b>Parameter</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>	<b>Other specifications</b>
Cooling water intake [denoted 10UQA on Supporting Plan 1 received with application EPR/BL6217IM/V005]	Temperature of abstracted seawater	Continuous	Resistance Temperature Detector	--

<b>Table S3.4 Process monitoring requirements</b>				
<b>Emission point reference or source or description of point of measurement</b>	<b>Parameter</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>	<b>Other specifications</b>
W2 (W2 on emission point plan in Schedule 7), from boiler blowdown	pH	Continuous	To be agreed in writing by the Agency, with reference to Technical Guidance Note M18 (Monitoring of discharges to water and sewer)	-
	Ammoniacal nitrogen (as nitrogen)	Monthly		-
	Phosphate	Monthly		-
	Oil and grease	Daily		Visual inspection required
	Flow	Continuous		-
W3 [W3 on emission point plan in Schedule 7], from water treatment plant	pH	Continuous		-
	Nitrate (as nitrogen)	Monthly		-
	Oil and grease	Daily		Visual inspection required
	Flow	Continuous		-
W3.1 [Point W3.1 on emission point plan in Schedule 7] from electrochlorination plant	pH	Each batch discharge of neutralised acid only		Date and time of each batch discharge shall also be recorded
	Flow (volume)			
W3.2 [Point W3.2 on emission point plan in Schedule 7], from package sewage treatment plant	BOD	Monthly	-	
	Suspended solids	Monthly	-	
	Ammoniacal nitrogen (as nitrogen)	Monthly	-	
	Flow	Continuous	-	
W4 [Point W4 on emission point plan in Schedule 7], from cooling system	pH	Continuous	-	
	Flow	Continuous	-	

<b>Table S3.4 Process monitoring requirements</b>				
<b>Emission point reference or source or description of point of measurement</b>	<b>Parameter</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>	<b>Other specifications</b>
LCP 216	Net electrical efficiency	After each modification that could significantly affect these parameters	EN Standards or equivalent	
LCP 217	Net electrical efficiency	After each modification that could significantly affect these parameters	EN Standards or equivalent	



## Schedule 4 – Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

<b>Table S4.1 Reporting of monitoring data</b>			
<b>Parameter</b>	<b>Emission or monitoring point/reference</b>	<b>Reporting period</b>	<b>Period begins</b>
Oxides of nitrogen	A1, A2	Every 3 months	1 January, 1 April, 1 July, 1 October
		Every year	1 January
Carbon Monoxide	A1, A2	Every 3 months	1 January, 1 April, 1 July, 1 October
		Every year	1 January
Sulphur dioxide	A1, A2	Every 6 months	1 January, 1 July
Emissions to Water Parameters as required by condition 3.5.1	WW1	Every 6 months	1 January, 1 July
Surface water monitoring Parameters as required by condition 3.5.1	Cooling water intake [denoted 10UQA on Supporting Plan 1 received with application EPR/BL6217IM/V005]	Annually	1 May
Process monitoring Parameters as required by condition 3.5.1	W2, W3, W3.1, W3.2 & W4	Every 6 months	1 January, 1 July

<b>Table S4.2 Resource Efficiency Metrics</b>	
<b>Parameter</b>	<b>Units</b>
Electricity Exported	GWhr
Heat Exported	GWhr
Mechanical Power Provided	GWhr
Fossil Fuel Energy Consumption	GWhr
Non-Fossil Fuel Energy Consumption	GWhr
Annual Operating Hours	hr
Water Abstracted from Fresh Water Source	m <sup>3</sup>
Water Abstracted from Borehole Source	m <sup>3</sup>
Water Abstracted from Estuarine Water Source	m <sup>3</sup>
Water Abstracted from Sea Water Source	m <sup>3</sup>
Water Abstracted from Mains Water Source	m <sup>3</sup>
Gross Total Water Used	m <sup>3</sup>

<b>Table S4.2 Resource Efficiency Metrics</b>	
<b>Parameter</b>	<b>Units</b>
Net Water Used	m <sup>3</sup>
Hazardous Waste Transferred for Disposal at another installation	t
Hazardous Waste Transferred for Recovery at another installation	t
Non-Hazardous Waste Transferred for Disposal at another installation	t
Non-Hazardous Waste Transferred for Recovery at another installation	t
Waste recovered to Quality Protocol Specification and transferred off-site	t
Waste transferred directly off-site for use under an exemption / position statement	t

<b>Table S4.3 Large Combustion Plant Performance parameters for reporting to DEFRA and other Performance parameters</b>		
<b>Parameter</b>	<b>Frequency of assessment</b>	<b>Units</b>
Thermal Input Capacity for each LCP	Annually	MW
Annual Fuel Usage for each LCP	Annually	TJ
Total Emissions to Air of NO <sub>x</sub> for each LCP	Annually	t
Total Emissions to Air of SO <sub>2</sub> for each LCP	Annually	t
Total Emissions to Air of Dust for each LCP	Annually	t
Operating Hours for each LCP (Load Factor)	Annually	hr

<b>Table S4.4 Reporting forms</b>		
<b>Media/ parameter</b>	<b>Reporting format</b>	<b>Agency recipient</b>
Air & Energy	Form IED AR1 – SO <sub>2</sub> , NO <sub>x</sub> and dust mass emission and energy. Form as agreed in writing by the Environment Agency.	National and Area Office
LCP	Form IED HR1 – operating hours. Form as agreed in writing by the Environment Agency.	National and Area Office
Air	Form IED CON 2 – continuous monitoring. Form as agreed in writing by the Environment Agency	Area Office
CEMs	Form IED CEM – invalidation Log. Form as agreed in writing by the Environment Agency.	Area Office
Resource Efficiency	Form REM1 – resource efficiency annual report Form as agreed in writing by the Environment Agency.	National and Area Office
Water	Form water 1 or other form as agreed in writing by the Environment Agency	Area Office

# Schedule 5 – Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

## Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

<b>(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution</b>	
<b>To be notified within 24 hours of detection</b>	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

<b>(b) Notification requirements for the breach of a limit</b>	
<b>To be notified within 24 hours of detection unless otherwise specified below</b>	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	Notification period

<b>(c) Notification requirements for the detection of any significant adverse environmental effect</b>	
<b>To be notified within 24 hours of detection</b>	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

## **Part B – to be submitted as soon as practicable**

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

<b>Name*</b>	
<b>Post</b>	
<b>Signature</b>	
<b>Date</b>	

\* authorised to sign on behalf of the operator

## Schedule 6 – Interpretation

“accident” means an accident that may result in pollution.

“Air Quality Risk Assessment” has the meaning given in Annex D of IED Compliance Protocol for Utility Boilers and Gas Turbines.

“application” means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

“authorised officer” means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

“base load” means: (i) as a mode of operation, operating for >4000hrs pa; and (ii) as a load, the maximum load under ISO conditions that can be sustained continuously, i.e. maximum continuous rating.

“Black Start” means the procedure to recover from a total or partial shutdown of the UK Transmission System which has caused an extensive loss of supplies. This entails isolated power stations being started individually and gradually being reconnected to other power stations and substations in order to form an interconnected system again.

“calendar monthly mean” means the value across a calendar month of all validated hourly means.

“CEN” means Comité Européen de Normalisation.

“Combustion Technical Guidance Note” means IPPC Sector Guidance Note Combustion Activities, version 2.03 dated 27th July 2005 published by Environment Agency.

“commissioning” means testing of the installation that involves any operation of a Large Combustion Plant referenced in schedule 1, table S1.1 or as agreed with the Environment Agency.

“daily average” means the average over a period of 24 hours of validated hourly averages obtained by continuous measurements.

“disposal” means any of the operations provided for in Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“DLN” means dry, low NO<sub>x</sub> burners.

“emissions of substances not controlled by emission limits” means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission or background concentration limit.

“emissions to land” includes emissions to groundwater.

“Energy efficiency” means the annual net plant energy efficiency, the value for which is calculated from the operational data collected over the year.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2016 No.1154 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

“groundwater” means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

“Industrial Emissions Directive” means DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions.

“large combustion plant” or “LCP” is a combustion plant or group of combustion plants discharging waste gases through a common windshaft or stack, where the total thermal input is 50 MW or more, based on net calorific value. The calculation of thermal input, excludes individual combustion plants with a rated thermal input below 15MW.

“low polluting fuels” means biomass or coal with an average as-received sulphur content of less than 0.4% by mass as described in the ESI IED Compliance Protocol for Utility Boilers and Gas Turbines.

“MCERTS” means the Environment Agency’s Monitoring Certification Scheme.

“MCR” means maximum continuous rating.

“MSDL” means minimum shut-down load as defined in Implementing Decision 2012/249/EU.

“MSUL” means minimum start-up load as defined in Implementing Decision 2012/249/EU.

“Natural gas” means naturally occurring methane with no more than 20% by volume of inert or other constituents.

“ncv” means net calorific value.

“Net electrical efficiency” means the ratio between the net electrical output (electricity produced minus the imported energy) and the fuel/feedstock energy input (as the fuel/feedstock lower heating value) at the combustion unit boundary over a given period of time.

“operational hours” are whole hours commencing from the first unit ending start up and ending when the last unit commences shut down.

“quarter” means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

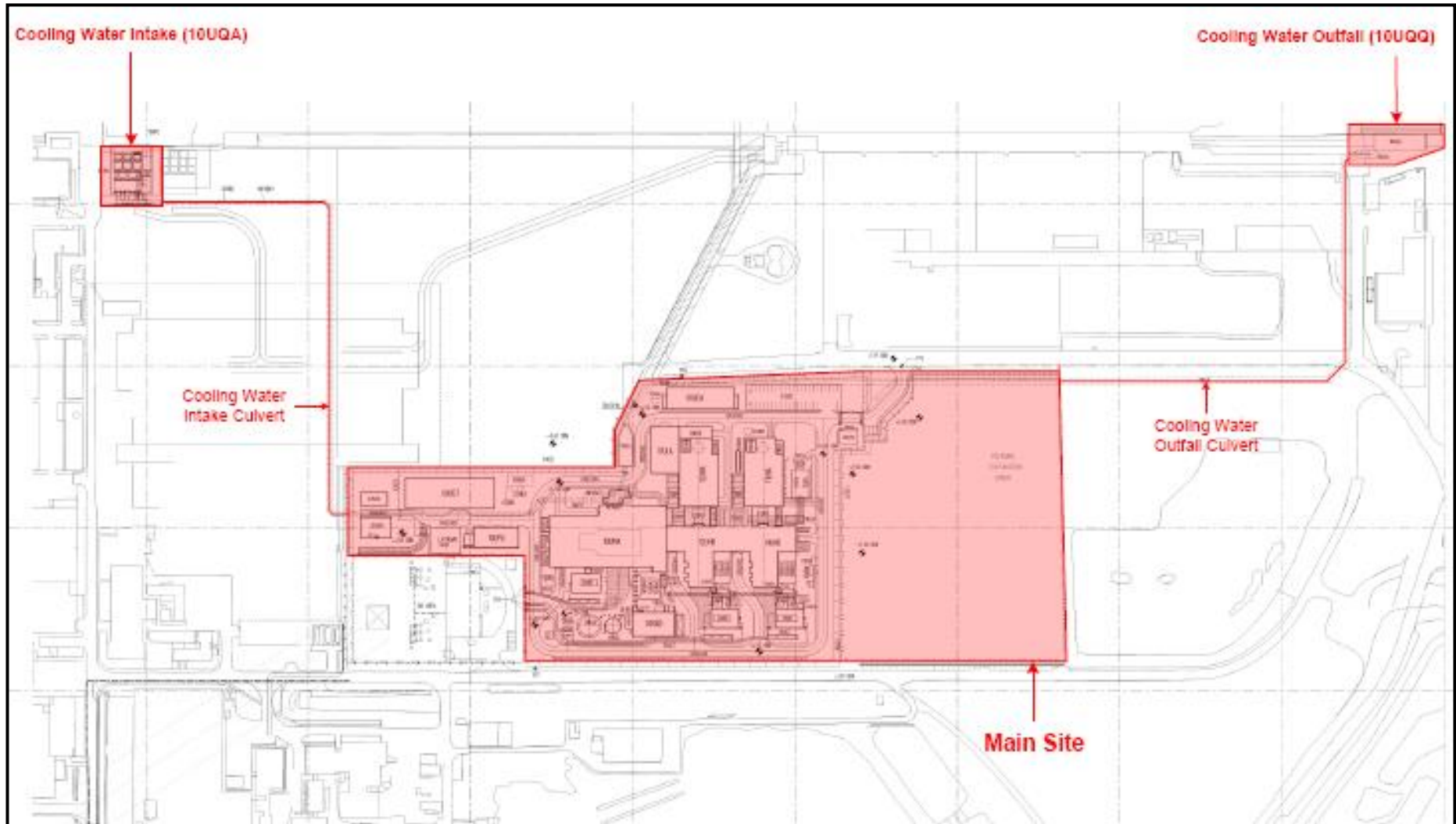
- in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or
- in relation to emissions from gas turbine or compression ignition engine combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3kPa and with an oxygen content of 15% dry for liquid and gaseous fuels; and/or
- in relation to emissions from combustion processes comprising a gas turbine with a waste heat boiler, the concentration in dry air at a temperature of 273K, at a pressure of 101.3kPa and with an oxygen content of 15% dry, unless the waste heat boiler is operating alone, in which case, with an oxygen content of 3% dry for liquid and gaseous fuels; and/or
- in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content.

“year” means calendar year ending 31 December.

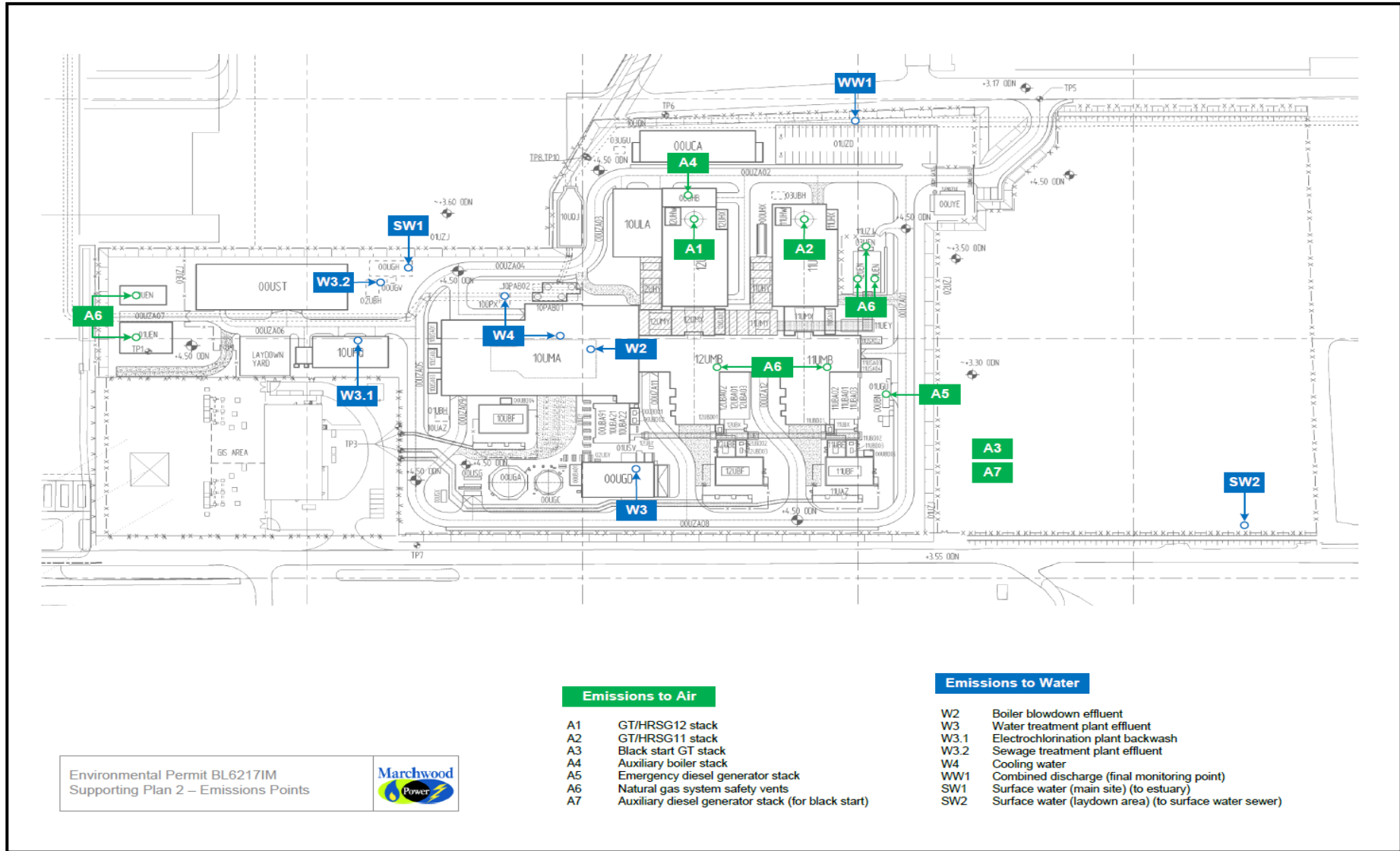
“yearly average” means the average over a period of one year of validated hourly averages obtained by continuous measurements.

# Schedule 7 – Site plan

## a) Site plan



## b) Emission point plan



END OF PERMIT